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JG/gmp  
1-16-59

VULYF~~S~~ON, F. A.

25(1)	PHASE I BOOK EXPLOITATION	SOV/2383
	Академія наук ССР. Конференція по технології машинобудування	
	автоматизованої машинобудувальній промисловості. "ІІІ. Прядів і управління рабочими машинами (автоматизація машинобудуван- ня процесами. Вол2: Дрives and Control Systems for Produc- tion Machinery). Рад.-во АН ССР, 1959. 370 p. Експ. від- п. відпечат. 5.000 копій. відпечат.	
	М.І. Підгінин, Академічн. канд. of Publishing House: Д.М. Лорел. Tech. Ed.: К.Р. Кур'єв.	
	PURPOSE: This book is intended for engineers dealing with auto- mation of various machine-building processes.	
	CONTENTS: This is the second volume of transactions of the second Conference on Overall Mechanization and Automation of Manufac- turing Processes held September 25-29, 1956. The present volume consists of three parts, the first dealing with the automation of engineering measuring methods. The subjects discussed include automatic control of dimensions of machined parts, inspection methods for automatic production lines, in-process inspection devices, application of electronics in automatic inspection of measuring processes, and machines for automatic inspection of bearing races. The second part deals with automatic drives and control systems for process machinery, including applica- tion of digital computer in the control of metal-cutting machines, tools, reliability of relay systems, application of gas-tube frequency converters in the control of induction motor speeds, magnetic amplifiers and their use in automatic systems, hydraulic drives, and ultrasonic vibrators. Part three deals with mechanisms of automatic machines and auto- matic production lines. The subjects discussed include lathes, indexing, and Geneva-wheel-type mechanisms, rotation drives, automatic loading devices, diaphragm-type pneumatic drives, various auxiliary devices for automatic production lines, and methods of design and accuracy of lines. No references are mentioned. There are no references.	
	CONTENTS: 1. "Some Problems Concerning Digital Control of Dimensions In Machine Building" [Deceased]. Automatic Control of Dimensions 2. Altimiller, A.M. Determining Optimum Conditions for Controlling the Mean Diameter of Machined Parts 3. V. V. Lenin University. Inspection Methods 4. "Some Problems Concerning Digital Control For Automatic Production Lines" [Deceased]. 5. Dovzhenko, Ye. I. Standard Devices for Active Control 6. Vilkman, V.S. Application of Electronics in Automating Linear Measuring Methods 7. Kusov, I.A. Xeroradiological and Statistical Checking of Some Automatic Inspection and Sorting Systems 8. Shilov, G.A., Ye. N. Dynkin. Experience Gained in Develop- ing Machines for Automatic Inspection of Bearing Races 9. Baranov, P.V. Digital Computers in Automatic Control of Pro- cesses 10. Dzhagarkhachyan, A.A. Some Problems Concerning Digital Control of Metal-cutting Machine Tools 11. Ivanov, V.A. Application of Gas Tube Frequency Converters in the Control of Induction Motor Speeds by the Frequency Method 12. Kuznetsov, Yu.G. and L.A. Vilkman. Designing Digital Program Control Systems for Machine Tools 13. Solntsev, B.I. Problems Concerning the Reliability of Relay Systems 14. Tsvetkov, V.A. Application of Gas Tube Frequency Converters in the Control of Induction Motor Speeds by the Frequency Method 15. Hardin, V.A. Controlled Electric Drive for Metal-cutting 16. Zverintsev, M.I. Development of the Theory of Mechanics of Rotating Machines Card 5/7	

VUL'FSON, I. A., Cand. Tech. Sci. (diss) "Linear Interpolator as Kinematic Connections in Metal-cutting Tools," Moscow, 1951, 17 pp (Inst. of Machine Operation) 200 copies (KL Supp 12-61, 264).

VUL'FSO<sup>N</sup>, I.A.

AUTHORS: Zusman, V.G. and Vul'fson, I.A.

121-4-3/32

TITLE: Certain Problems in Designing Systems of Digital Programme Control for Machine Tools (Nekotoryye voprosy proyektirovaniya sistem tsifrovogo programmnogo upravleniya stankami)

PERIODICAL: Stanki i Instrument, 1958, No.4, pp. 9 - 13 (USSR).

ABSTRACT: Digital programme control systems belong to one of three groups: 1) Performing setting-up rotations of the working organs; 2) Controlling motions of the working organs by which the component shape is generated; 3) Controlling all machine motions in response to results computed from detecting element signals. In considering the first group, applicable in drilling, jig boring, horizontal boring and punching, the problem is to ensure the required accuracy together with the maximum rapidity of motions, both for setting-up and cutting. A typical control cycle is considered and a simple analysis is applied to determine optimum velocities and the required resolution of the digital control step. The second group is stated to be at the beginning of its technical development with many unsolved problems. A general discussion is devoted to the topics of: a) reduction of the required volume of information, In the general case, mathematical theory can be used to evaluate the volume of information required in relation to the permitted error

Card1/2

121-4-3/32

Certain Problems in Designing Systems of Digital Programme Control  
for Machine Tools

(Kolmogorov, A.N. - "On Certain Asymptotic Properties of Wholly Bounded Metric Spaces", 1956, No.3, Doklady AN SSSR). In practice, the prevalence of straight lines and circles greatly simplifies the problem; b) appropriate dimensioning of drawings. Dimensioning convenient for digital control is illustrated by an example; c) the substitution of special programme control devices and keyboard machines for general electronic computing machines. Fig. 7 shows the configuration diagram of a device designed by ENIMS to translate digital information into impulse form using linear interpolation. The machine transfers the information from a perforated paper strip into a five-way magnetic impulse tape; d) the development of control devices directly associated with the machine tool in order to formulate the digital information by a kind of copying procedure. The third group of programme control system is not discussed. There are 7 figures and 4 Russian references.

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Card 2/2 1. Machine tools (Automatic) 2. Machine tools-Control systems

ZUSMAN, V.G. ; VUL'FSON, I.A.

Selecting a coded decimal system. Stan. i instr. 31 no.9:3-6 S  
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(Machine tools--Numerical control)

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Designing numerical-control systems for machine tools. Stan. i instr.  
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Automatic control of cutting conditions on program controlled milling  
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VUL'FSO, I. A., Engineer

Cand. Tech. Sci.

Dissertation: "Certain Problems of Setting Up a Multiple-Tool Machine."

8 Mar. 49

Moscow Mechanics Inst.

SO Vecheryaya Mcskva  
Sum 71

ZUSMAN, V.G.; VUL'FSON, I.A.

Program controlled machines. Stan. 1 instr. 26 no.7:1-9 J1  
'56. (MLRA 9:10)

(Machine tools--Numerical control)

RUZINOV, L.D.; LEBEDEV, P.A., kand. tekhn. nauk, retsenzent;  
VUL'FSON, I.I., kand. tekhn. nauk, retsenzent; VAL'KOVSKY,  
A.A., kand. tekhn. nauk, red. [deceased]

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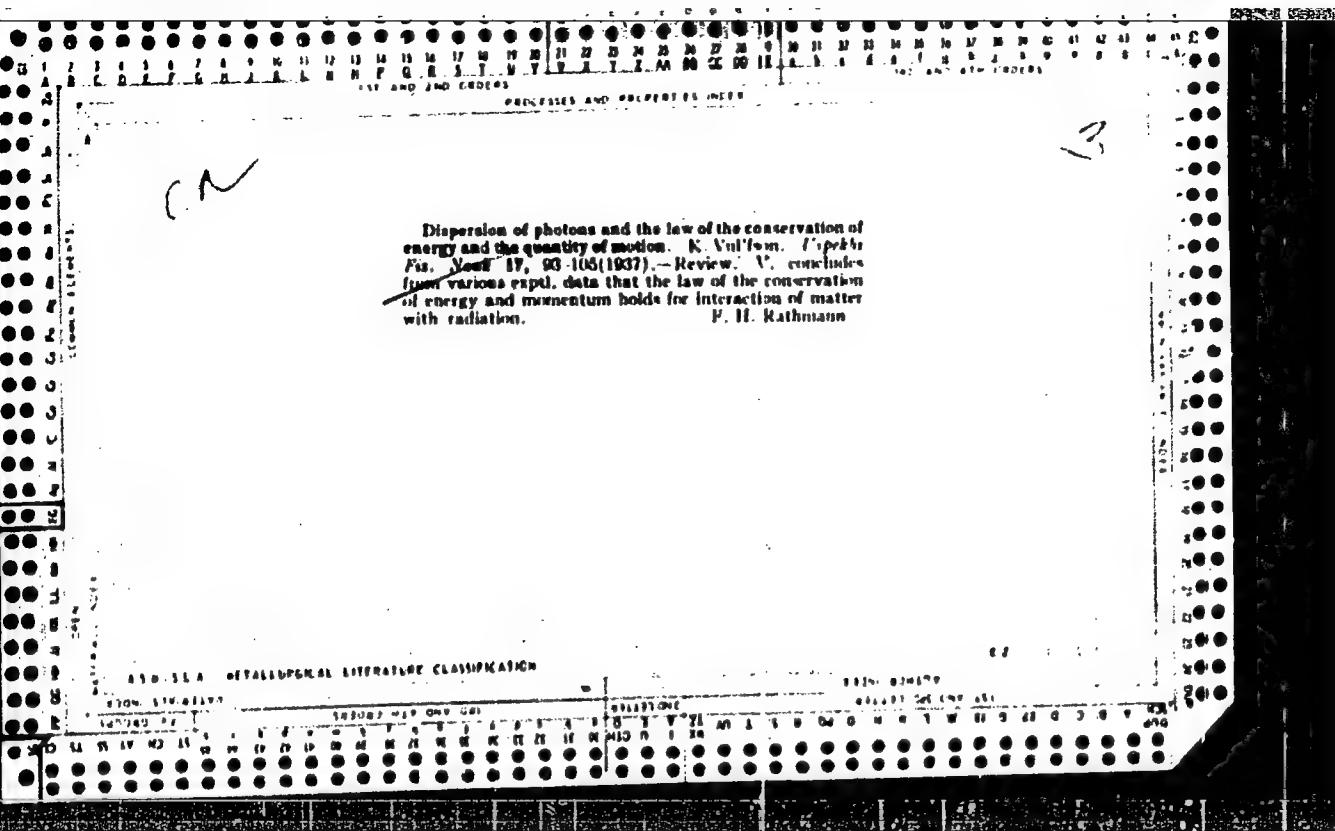
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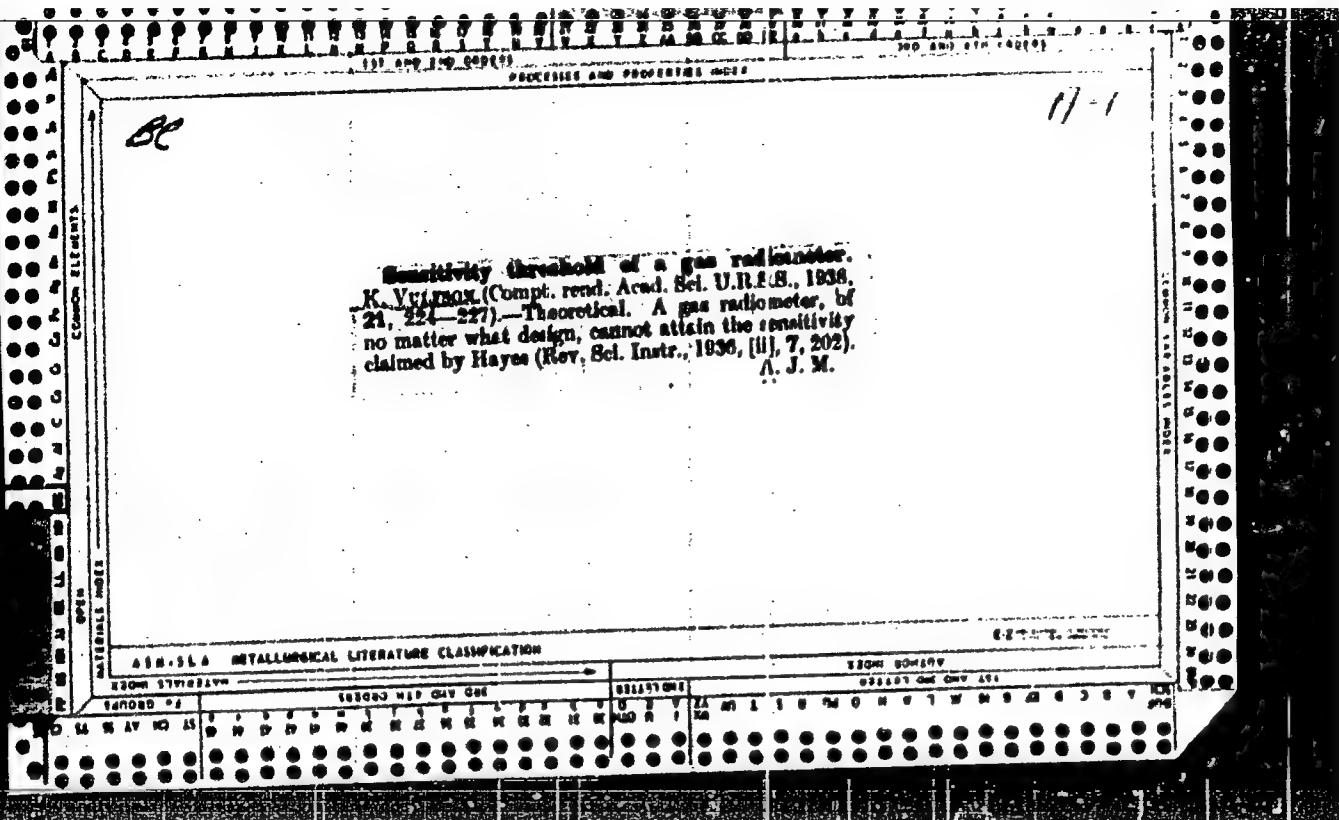
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SO: Uspekhi Achievements in Physical Sciences, 43, No. 2 (Feb. 1951)





SHABAD, L.M., prof., glav. red.; VERMEL', Ye.M., prof., zam. glav. red.; KONOPELEV, V.P., zam. glav. red.; GEL'SHTEYN, V.I., red.; KRICHINSKAYA, A.A., red.; SHAPOT, V.S., red.; VUL'FSON, K.G., red.; GONCHAROVA, T.I., tekhn. red.

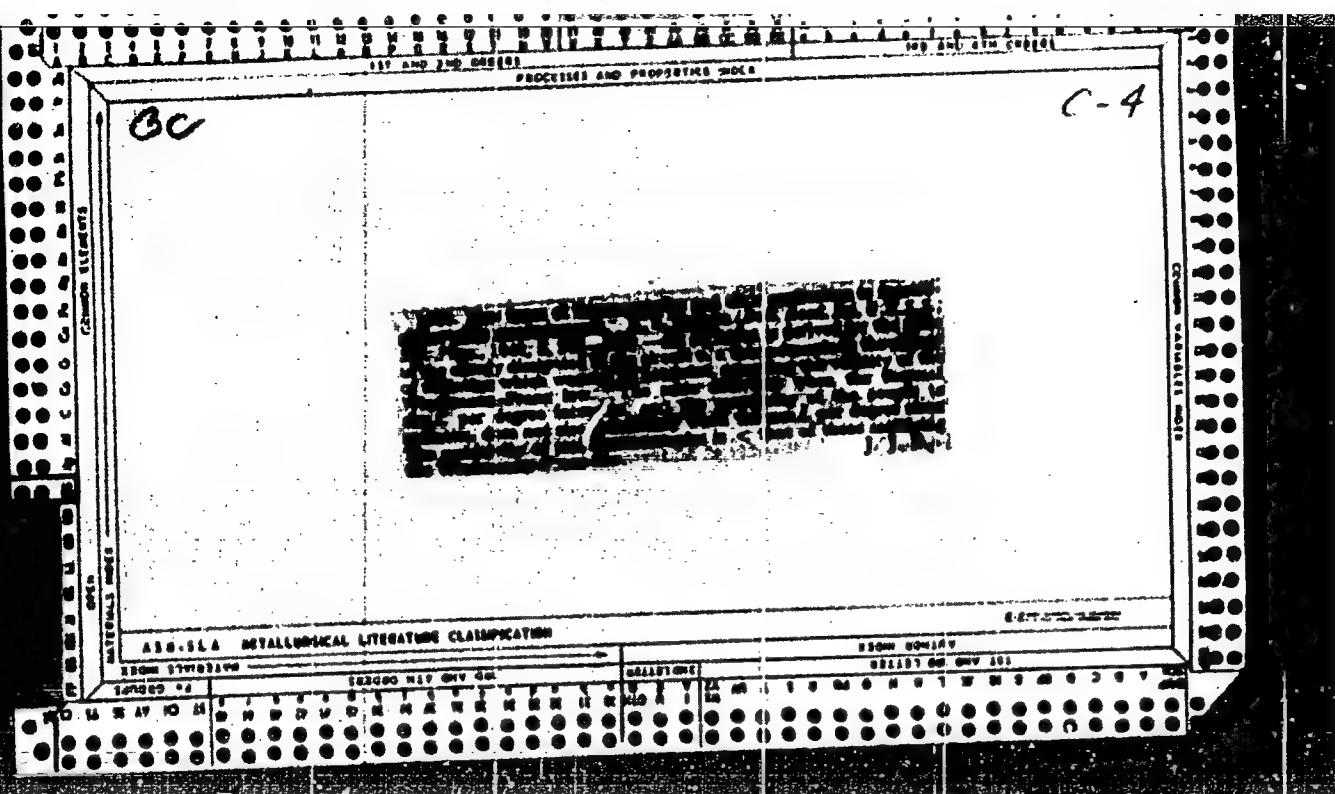
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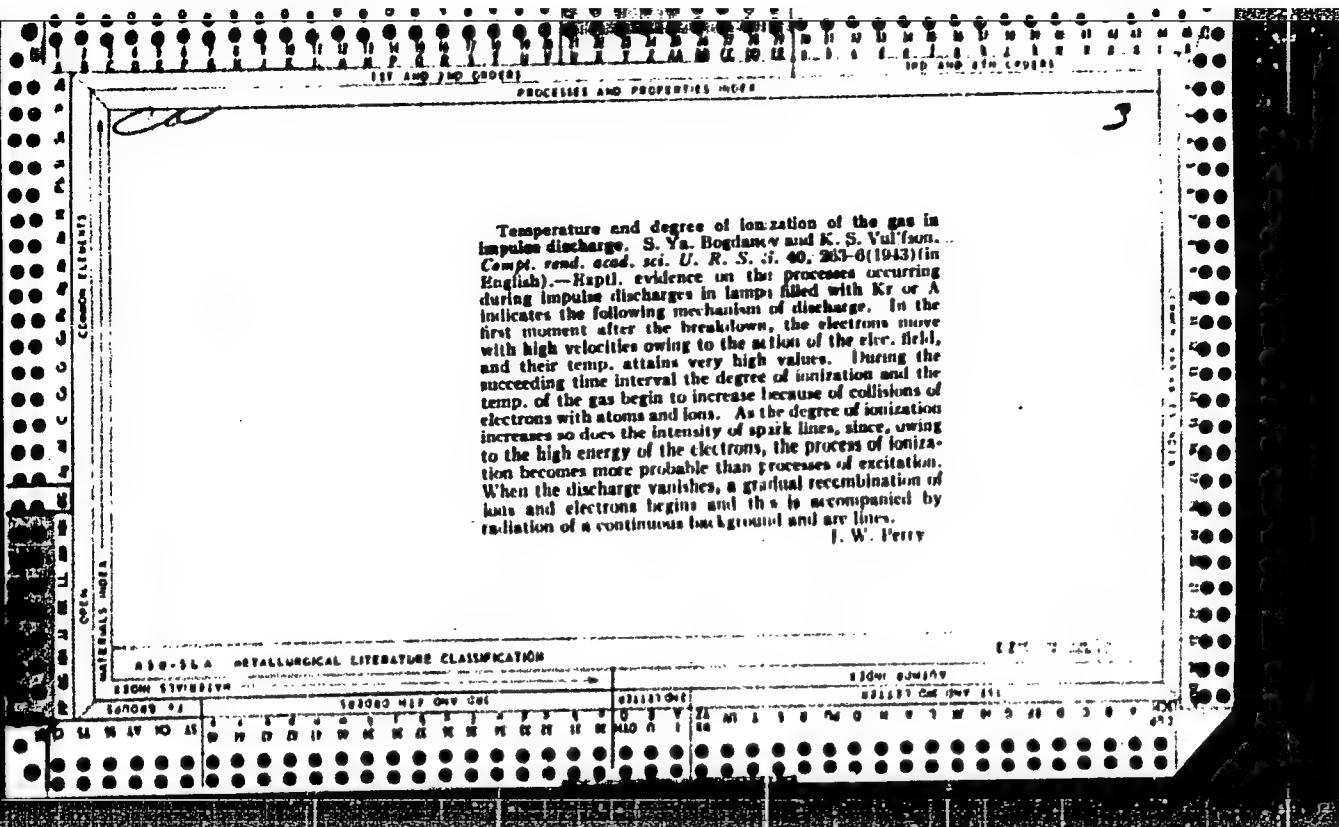
APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001961310008-2"

Mr. A.J.H.

Time scanning of impulse discharge spectra. S. J. Bogdanov and K. S. Vulfson (Compt. rend. Acad. Sci. U.S.S.R., 1941, 30, 311-314). A circuit for producing periodic discharges using a thyratron in series with a condenser and the discharge tube is described. Spectra of the impulse discharge in Kr at various c.d. show that lines belonging to the Kr II spark spectrum increase considerably in intensity with increase of c.d. The lines of the Kr I arc spectrum do not vary greatly in intensity with c.d. By using a rotating mirror, the variation of the spectrum during the impulse itself has been investigated. The behaviour of arc and spark lines can thus be examined. The emission of spark lines takes place during the first phase of the discharge, when the d.d. and ionisation are a max. The intensity of the arc lines attains a max. later in the discharge, when the spark lines are beginning to decrease.

A.J.H.



*24*

3

**Impulse discharge in inert gases.** K. S. Vulf'yan. *Bull. Acad. sci. U.R.S.S., Ser. Phys.* 9, 220-16 (1945). The spectral character of the impulse discharge is different from that of an arc or a spark discharge owing to the high temp. and the complete ionization. The highest luminosity is obtained in gases having a great number of visible spark lines. Krypton gives the highest brilliance (100 candles per sq. cm. compared to 20 in Ar and 1 in He). — S. P.

A.S.G.L.A. METALLURGICAL LITERATURE CLASSIFICATION

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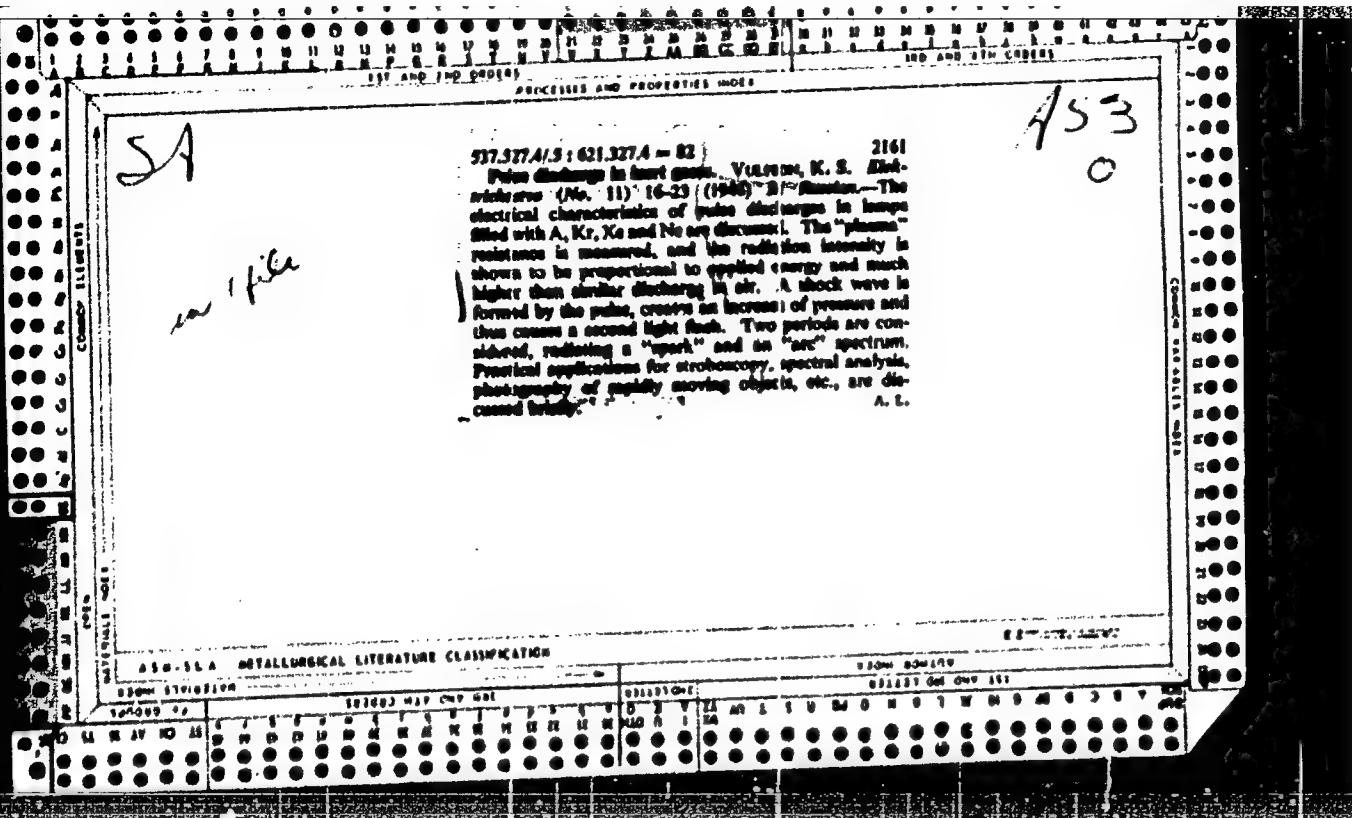
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SEARCHED MAY 1964

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31

A 53

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535,8

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2593. Apparatus for the optical projection of the filament of an electrometer. K. S. Vulfsen. J. Tech. Phys., USSR, 20, 758-9 (June, 1950). In Russian.

The apparatus was specially designed for the electrometer of a Zeiss recording photometer and is based on the auto-collimating principle. It is, however, universally useful, as only the microscope of the electrometer has to be removed and replaced by the simple projecting apparatus. The source of light is a 200 W Hg lamp. R. F. Kraus

B. F. Kraus

A.S.H.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 09/01/2001

CTA-RDP86-00513R001961310008-2"

SA

A 83

1

535.23

7650. An absolute method of measuring the black-body temperature. K. S. Vulfson. J. Exp. Theor. Phys., USSR, 21, 507-11 (April, 1951) In Russian. The new method is based on the comparison of the intensities of the spectral radiation at various wave-lengths for two different temperatures. The laws of the black-body radiation enable, if the spectral intervals are sufficiently far from each other, both temperatures to be determined unequivocally. Two special advantages of the method are that neither the spectral transparency of the monochromator nor the spectral sensitivity of the receiving apparatus need be known, and that no radiation etalon of known spectral distribution is required. The theory is given for one of the waves lying in the range of validity of Wien's (approximate) law, the other in the long-wave part of the spectrum where the Rayleigh-Jeans approximation holds. The most general case is then considered on Planck's formula. The method cannot claim a particular accuracy, but its value resides in its suitability as check on other methods, and for the gradation of optical pyrometers. It is furthermore suitable for measuring the temperatures of grey and selective radiators, the spectral emissivity of which is independent

A 83-1

180T41

USSR/Electricity - Discharge, Gas

Apr 51

"Widening of Impulse Discharge Channel Through Inert Gases," K. S. Vulfson, I. Sh. Libin, All-Union Elec Eng Inst

"Zhur Eksper i Teoret Fiz" Vol XXI, No 4, pp 510-513

Measured velocity of widening of spark discharge channel through argon, krypton and xenon by rotating mirror. Observed glowing of gas under action of reflected shock wave. Describes case of formation of 2 independent channels in gases.

LC

180T41

VUL'FSOY, K. S., LIBIN, I. Sh.

Spectrophotometer

Slit radiator for spectrophotometric measurements. Zhur. tekhn. fiz. 22 no. 3 (1952)

9. Monthly List of Russian Accessions, Library of Congress, August 1952, 1953, Uncl.

VUL'FSOY, K.S.; LIBIN, I.Sh.; CHARNAYA, P.A.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001961310008-2"

Investigation of the instantaneous brightness of impulse discharge channels in inert gases. Izv. AN SSSR. Ser. fiz. 19 no.1: 61-64 Ja-F '55. (MIRA 8:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy svetotekhnicheskiy institut.

(Spectrum analysis) (Spectrometer)

LIBIN, Izrail' Shneyerovich; VUL'FSON, K.S., redaktor; SKVORTSOV, I.M.,  
tekhnicheskij redaktor

[Stroboscopes and their use] Stroboskopy i ikh primenenie. Moskva,  
Gos. energ. izd-vo, 1956. 39 p. (Massovaja ratiobiblioteka, no.246)  
(Stroboscope) (MLRA 9:11)

Dokl.Akad.Nauk, 109, fasc.5, 929-930 (1956) CARD 2 / 2

PA - 1442

(only some meters) and can therefore be determined interferometrically with great accuracy. The mirror is best shifted in such a manner that the repetition frequencies of the light impulses are identical with the harmonics of the quartz generator used for gauging. In this case frequencies are determined with particular accuracy. The repetition frequencies of the flashes of light can be determined by means of the gauging generator by the method of LISSAJOU'S figures. On this occasion measuring accuracy is determined by the average stability of both the gauging generator and the measuring device itself. The immobility of LISSAJOU'S figures on the screen of the cathode oscilloscope can be observed for any length of time. In this way it is possible to attain greater accuracy of comparison than by comparing the phases (as is the case with other methods for measuring the velocity of light). At present comparison attains a degree of accuracy of from  $10^{-7}$  to  $10^{-8}$ . Distances of the order of several meters can be determined with the same degree of accuracy and this accuracy is therefore also attained for the determination of the velocity of light. So high a velocity naturally necessitates designing and constructing devices with very stable parameters.

INSTITUTION:

DEYNEGA, F.D.; VUL'FSON, M.G.; PYL'HEN'KIY, A.A., redaktor; VUYHK, M.P..  
tehnicheskij redaktor.

[Brewing beer according to new techniques] Preizvodstvo piva po  
novoi tekhnologicheskoi skheme. Kiev, Gos.izd-vo tekhn. lit-ry  
USSR, 1954. 61 p. (Microfilm) (MLRA 9:5)  
(Beer)

~~VUL'FSON, K.S., prof.; GURIEVICH, M.M., prof.; MESHKOV, V.V., prof.; NILENDER,~~  
~~R.A., prof.; YUROV, S.A., kand. tekhn. nauk; SOKOLOV, V.M., kand. tekhn. nauk;~~  
~~DEYNEGA, F.D., kand. tekhn. nauk; BUTATZVA, F.A., kand. tekhn. nauk;~~  
~~IVANOVA, N.S., kand. tekhn. nauk; SUSHKIN, N.G., kand. tekhn. nauk.~~  
APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001961310008-2"

Valentin Aleksandrovich Fabrikant; on his 50th birthday. Svetotekhnika 3 no.12:24-25 D '57. (MLRA 11:1)  
(Fabrikant, Valentin Aleksandrovich, 1907-)

ARTEM'YEV, A.A., kand.tekhn.nauk; STHML'TSOVA, A.A., kand.khim.nauk;  
GENKINA, Ye.V., kand.tekhn.nauk; VUL'YSON, K.S., doktor fiz.-  
mat.nauk

Photochemical nitroxation with nitrosoyl chloride. Khim.nauk i  
(MIRA 11:11)  
prom 3 no.5:629-636 '58.  
(Nitrosoyl chloride) (Photochemistry) (Hydrocarbons)

VUL'FSON, K.S.; CHARAYA, F.A.

Limit brightness of the channel of an impulsive discharge in  
inert gases and in air. *Fiz.sbor.* no.4:73-76 '58.

(MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy svetotekhnicheskiy  
institut.

(Electric discharges through gases)

24 (8), 9 (6)

AUTHOR:

Vul'fson, K. S.

BOV/20-125-6-12/61

TITLE:

The Use of Electron-optical Converters for the Accurate  
Measurement of the Velocity of the Propagation of Light  
(Primeneniye elektronnoopticheskikh preobrazovateley dlya  
technogo izmereniya skorosti rasprostraneniya sveta)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6,  
pp 1223-1224 (USSR)

ABSTRACT:

Ye. K. Zavoyskiy and S. D. Fanchenko (Ref 1) described an electron-optical apparatus for measuring the duration of light flashes. The theoretical resolving power of this apparatus is  $10^{-14}$  sec and in practice it is of the order of  $10^{-13}$  sec. This device may also be used for an especially exact measurement of the propagation velocity of light. The scheme suggested for the arrangement of the devices is shown by a schematic drawing. A light source emits light pulses of as short a duration as possible and with a considerably curved front. A spark in a compressed gas between two miniature electrodes may serve as such a source. The duration of the luminosity of such a spark is  $\sim 5 \cdot 10^{-10}$  sec. The light rays originating from

Card 1/3

The Use of Electron-optical Converters for the Accurate Measurement of the Velocity of the Propagation of Light

SOV/20-125-6-12/61

the light source pass through 2 semitransparent mirrors and are reflected by a third. The distance between the second mirror and the third is the basis for determining the propagation velocity of light. The reflected light rays incide upon the photocathode of an electron-optical converter which is fitted with deflecting plates and has a large amplification coefficient. To the deflecting plates of the converter the voltage of a high-frequency generator with accurately given frequency ( $\sim \sim 100$  cm) is then applied. According to the author's opinion the discussed measuring method is, at present, the most accurate means of measuring the velocity of light. Because of the shortness of the required basis length, measurements may also be carried out in a vacuum, so that one of the most important sources of errors, viz. the inaccurate determination of the refraction index of air, may be eliminated. Besides, when using a short basis length, accuracy may further be increased by the employment of interferometric methods. There are 1 figure and 1 Soviet reference.

Card 2/3

The Use of Electron-optical Converters for the Accurate Measurement of the Velocity of the Propagation of Light

SOV/20-125-6-12/61

ASSOCIATION: Moskovskiy gorodskoy pedagogicheskiy institut im. V. P. Potemkina (Moscow State Pedagogical Institute imeni V. P. Potemkin)

PRESENTED: October 13, 1958, by M. A. Leontovich, Academician

SUBMITTED: October 10, 1958

Card 3/3

VUL'FSON, K.S.

Kinetics of the operation of a photoreactor. Zhur. fiz. khim. 39 no.6:1531-1535 Je '65. (MIRA 18:11)

1. Moskovskiy nauchno-issledovatel'skiy svetotekhnicheskiy institut. Submitted April 1, 1964.

L-65182-65 EWT(a)/EPP(c)/EWP(:)/EAP(b) IIP(c) JD

ACCESSION NR: AP5021271

UR/0020/65/163/C05/1113/1114

AUTHOR: Vul'fson, K. S.; Libin, I. Sh.; Chernyak, A. Sh.

TITLE: The mechanism responsible for secondary radiation peaks during a pulse discharge in neon 41

SOURCE: AN SSSR. Doklady, v. 163, no. 5, 1965, 1113-1114

TOPIC TAGS: neon, gas discharge, pulse amplitude, plasma physics

ABSTRACT: Using a low-resistance discharger to bypass a neon gas discharge results in an additional emission pulse with an amplitude which may be twice the maximum emission of the discharge without bypassing. In a recently published paper (F. B. Johnson, T. H. Rautenberg, Jr., H. Harris, J. App. Phys., 35, No 4, 1128, 1964), two possible mechanisms for this phenomenon were considered: 1) population inversion in excited levels; 2) disruption of recombination conditions due to a change in the behavior of the reduction in electron temperature of the discharge. The experimental examination of these hypotheses given by Johnson et al. definitely refuted the first mechanism and did not give any evidence in favor of the second. The authors of the present work propose that the effect is due to eddy currents which

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L 65182-65

ACCESSION NR: AP5021271

arise in the discharge plasma when there is a sharp change in the discharge current. This hypothesis was experimentally checked by the oscillograph method. It was found that any sharp change in the discharge current, no matter what the causes of this change, is always accompanied by secondary peaks in the neon emission. The amplitude of these peaks is directly related to the rate of change in the discharge current, and in certain cases is 8-10 times greater than that of the fundamental radiation peak. An inductance connected in series with the neon tube or with the bypass discharger always reduced the amplitude of these peaks, or eliminated them entirely. Analysis of the distribution of illumination in the cross section of the discharge also confirms the new hypothesis on the mechanism responsible for this phenomenon. This effect could possibly be used for producing extremely intense light pulses with a step front. Orig. art. has: 2 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy svato-tehnicheskiy institut  
(All-Union Scientific Research Institute of Lighting Engineering)

SUBMITTED: 22Jan65

ENCL: 00

SUB CODE: EH, ME

NO REF Sov: 002

OTHER: 002

Card 2/24 sub

VUL'FSON, K.S.; CHARNAYA, F.A.

Measuring the diameter of a high-pressure pulse discharge  
channel in different spectral regions. Opt.i spektr. 11  
no.4:549-551 O '61. (MIRA 14:10)  
(Electric discharges) (Photometry)

S/051/61/011/004/004/004  
E202/E592

AUTHORS: Vul'fson, K.S. and Charnaya, F.A.

TITLE: Measurement of channel diameter of a high pressure  
impulse discharge in various spectral regions

PERIODICAL: Optika i spektroskopiya, v.11, no.4, 1961, 549-551

TEXT: The object of this work was to confirm experimentally theoretical relations established by Unsold (Ref.7: Physics of stellar atmospheres, IL, M., 1949) and V. O. Ambartsumyan (Ref.8: Theoretical astrophysics, ONTI, M-L, 1949), indicating that in a plasma, a given value of an absorption coefficient is attained in long wavelength radiations at a much lower temperature than in the corresponding shorter wavelength radiations. The apparatus used by the authors permitted the study of the early stages in the plasma discharge, and the widening of the channel diameter in the luminous part of the spectrum. The light from the discharge channel of a lamp was focused on the entry wedge of a monochromator. This arrangement was used to select the required portion of the channel. The time sequence control was achieved by means of a rotating mirror objective projecting the

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Measurement of channel diameter ... S/051/61/011/004/004  
E202/E592

exit wedge of the monochromator on the film in a high speed camera. The position of the rotating mirror was optically synchronized to the time of the discharge; the whole arrangement was capable of a time resolution of  $7 \times 10^{-6}$  sec<sup>-1</sup>, the monochromator width being 0.05 to 0.08 mm. The channel diameter was determined from photographs, by photometric scanning at right angles to the time axis, at intervals of 0.1  $\mu$ sec. These data were used to plot the distribution curves of spectral luminosity ( $B_\lambda$ ), against the distance measured at right angles to the longitudinal axis, across the diameter of the channel. The working parameters were as follows: pressure - 18 atm; circuit capacity - 0.6  $\mu$ F; energy dissipated - 5 kW; wavelengths 0.4  $\mu$  and 0.66  $\mu$ . Relations between the channel diameter and the time elapsed from the beginning of the discharge were also determined for xenon, krypton and argon lamps. It was shown that in all these gases the diameter in the long-wave radiations is greater than in the short-wave radiations. Furthermore, the luminous surface defining the diameter of the channel lay, in the case of the short-wave radiations, closer to the axis of the discharge than in the

Card 2/3

Measurement of channel diameter ... S/051/61/011/004/004/004  
E202/E592

long-wave radiations and is thus in the region of higher temperature. The importance of this phenomenon lies in that it could be used in conjunction with the  $B_\lambda$  data to calculate the radial gradient of temperature in a plasma of this type. There are 3 figures and 15 references: 12 Soviet (1 a translation from non-Soviet) and 3 non-Soviet. The English-language references read as follows: Ref.4: H. Fischer. J.Opt.Soc.Amer. 47, 11, 1957; Ref.5: H. Fischer. Conference on extremely high temperatures, p.11, Boston, 1958.

SUBMITTED: November 28, 1960

Card 3/3

VUL'FSON, K.S.; CHARMAYA, F.A.

Investigating the brightness of the channel of a pulse discharge.  
Usp.naučn.fot. 6:27-30 '59. (MIRA 13:6)  
(Electric discharge lighting)

VULFFSON, K.S.

121(0), 24(0) **PHYSICO-EXPLOITATION** Akademicheskii nauch SSSR. Fizicheskii institut Tsentradoval'niya po eksperimental'noi i teoreticheskoy fizikei: [abnorm.] Studii na eksperimental'noi i teoretičeskoi fizike: Collection of (Studies on Experimental and Theoretical Physics: Collection of Articles). Moscow: Izd-vo AN SSSR, 1959. 304 p. Errata slip inserted. 2,300 copies printed.

Ed.: I. L. Fabel'stinskii, Doctor of Physical and Mathematical Sciences; B. S. Baskakov, Publishing House: A. I. Chernyayev and V. G. Borkovskii, V. V. Rytov, Commission for Publishing the Collection. Tech. Ed.: Yu. V. Rytov. Translation: I. Ye. Tamm. In Memory of Grigor'yan Samuilovich Landberg: I. Ye. Tamm, Academician; M. A. Leont'evich, Academician; (Chairman), Academician; M. A. Leont'evich, Academician; P. A. Baskakov, Doctor of Physical and Mathematical Sciences; S. I. Mandel'shtam, Doctor of Physical and Mathematical Sciences; I. I. Landberg, Doctor of Physical and Mathematical Sciences; R. S. Mandel'shtam, Candidate of Physical and Mathematical Sciences; and D. P. Morozov (Secretary), Candidate of Physical and Mathematical Sciences.

**PURPOSE:** This book is intended for physicists and researchers engaged in the study of electromagnetic radiations and their role in investigating the structure and composition of materials.

**COVERAGE:** The collection contains 30 articles which review investigations in spectroscopy, optics, molecular optics, seal-conductor physics, nuclear physics, and other branches of physics. The introductory paper gives a biographical profile of G. S. Landsberg, Professor and Head of the Department of Physics of the Division of Physical Technology at Worcester Polytechnic Institute. The remaining 29 articles are a compilation and review of his work in Rayleigh scattering, combat radar, spectral analysis of metals, etc. No personalities are mentioned, references accompany each article.

পৰিমাণ কৰিব। এই কৰ্ম কৰিবলায় কোনো পৰিমাণ কৰিব।

ABRAHAMSON AND A. M. MCGILLIVRAY. Investigation of Transformation Processes in an Activated Discharge Generator Operating Under Conditions of Low Arc Currents 27

Aleksandrov, I. S., Kh. Ye. Stegani, I. B. Liberman, and B. A. Krasnitsky: The Possibility

THE following are the titles of a couple of the *Continental* *Magazines* published in Boston.

Landry, H. H. Standing Sound Waves of Large Amplitude 53

Section 6 and A. I. Schools. Investigation of the

卷之三

Beaufort, 2, and 4 miles from the coast. A small stream flows into the sea near the village.

Hannover, T. V., Major transactions in nonresident funds 71

Vol. 1, No. 1, January 1960. \$1.00. Operated by the Department of Education in 1959.

Vol. 8, No. 1, 1955. V. S. Mehta and A. P. Sirohi. The Question of

THE JOURNAL OF INTELLIGENCE

ପାଠୀରେ ପାଠୀରେ ପାଠୀରେ ପାଠୀରେ ପାଠୀରେ

classmate, A. L., and A. L. Kavanagh. 1981. Evaluation of the second type and the

ERITREAN CULTURAL PERIOD

## Under the Reform of Statistically Distributed Forces

Levin, L. M., "The Dismantle of Linen by a Cloud  
151

Passing H. A. S. L. Mandalachary and V. G. Koloshnky.  
The Proceedings and Minutes of the Session 1908 of a Gas

## Discharge in Plants

—Even Bond, the banker, whose business has been conducted with the Hydroelectric Company, has been compelled to withdraw his name from the list of stockholders.

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001961310008-2"

VUL'FSO<sub>N</sub>, K.S.

SOV/B1-59-19-67775

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 19, p 133 (USSR)

AUTHORS: Vul'fson, K.S., Charnaya, F.A.

TITLE: The Brightness Limit of the Channel of Pulse Discharge in Inert Gases and in Air

PERIODICAL: Fiz. sb. L'vovsk. un-t, 1958, Nr 4(9), pp 73 - 76

ABSTRACT: The dependence of the brightness of the pulse discharge channel in Xe, K<sub>2</sub>, Ar and air, on the gas pressure, the capacitance of the capacitor and the tension on the capacitor has been investigated. With an increase in the pressure some increase of the channel brightness is observed in the inert gases but later on saturation sets in quickly. The highest value of the brightness limit has Ar, the smallest Xe. The spectral brightness limit practically does not depend on the capacitance of the capacitor in the range of 0.05 - 4  $\mu$  farad and on the tension on the capacitor. On attaining the limit value of brightness the discharge channel becomes a black-body radiator.

Card 1/1

L. Gribov

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ALISOVA, S.P.; VUL'F, L.B.; MARKOVICH, K.P.; PETROVA, L.A.; ROGACHEVSKAYA, Z.M.; AGEYEV, N.V., red.; MOSSKVINA, R.Ya., red.; MUKHA, S.Ya., tekhn. red.

[State diagrams of metal systems published in 1957] Diagrammy sostoianiiia metallicheskikh sistem, opublikovannye v 1957 godu. Pod red. N.V.Ageeva. Moskva. no.3. 1960. 270 p.

(MIRA 14:7)

(Alloys)

ALISOVA, S.P.; VIL'F, I.B.; MARKOVICH, K.M.; NOVIK, P.K.; PETROVA, L.A.;  
ROGACHEVSKAYA, Z.M.; AGEEV, N.V., red.; SOBOLEVA, N.M.,  
tekhn.red.

[Phase diagrams of metallic systems published in 1955] Diagrammy  
sostoianiia metallicheskikh sistem, opublikovанные в 1955 godu.  
Pod red. N.V. Ageeva. Moskva. No.1. 1959. 134 p.

(MIRA 13:12)

(Alloys) (Phase rule and equilibrium)

VULFSON M

**Potassium chlorate production.** S. D. STRUPNIKOV AND M. VULPENOV. *J. Chem. Ind. (Moscow)* 6, 1741-50 (1929).—A review and comparison between the chem. and electro-chem. methods of production of  $KClO_3$ . The chem. method is more efficient. R. S.

COMMISSIONS ET SERVICES

## ASH-ILA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001961310008-2"

VUL'FSON, M., kand. ekonom. nauk

The role of the new freight rates in increasing the economic efficiency  
of river transportation. Rech. transp. 24 no.6:6-8 '65. (MIRA 18:8)

VUL'FSON, M., kand.ekonom.nauk

New norms for amortization deductions in the fleet.  
Rech. transp. 21 no.12:14-16 D '62. (MIRA 15:12)  
(Inland water transportation--Accounting)  
(Amortization)

VUL'FSON, M.

Depreciation problems of the towing fleet. Mor.1 rech.flot 14  
no.2:15-18 F '54. (MLRA 7:1)

1. Tugboats

(Tugboats)

VISHNEPOL'SKIY, S.A., kand. ekon. nauk; BAYEV, S.M., inzh. putey soobshcheniya; BONDARENKO, V.S.; RODIN, Ye.D.; CHUVLEV, V.P.; TURETSKIY, L.S.; SMIRNOV, G.S.; SHAPIROVSKIY, D.B.; OBERMEYSTER, A.M.; SINITSIN, M.T.; KOGAN, N.D.; FETRUCHIK, V.A.; GRUNIN, A.G.; KOLESNIKOV, V.G.; MARTINOV, A.Ye.; KROTKIY, I.B. [deceased]; ZENEVICH, G.B.; MEZENTSEV, G.A.; KOLOMOYTSOV, V.P., kand. tekhn. nauk; ZAMAKHOVSKAYA, A.G., kand. tekhn. nauk; MAKAL'SKIY, I.I., kand. ekon. nauk; MITROFANOY, V.F., kand. ekon. nauk; CHILIKIN, Ya.A.; BAKAYEV, V.G., doktor tekhn. nauk, red. Prinimali uchastiye: DZHAVAD, Yu.Kh., red.; GUBERMAN, R.L., kand. ekon. nauk, red.; RYABCHIKOV, P.A., red.; YAVLENSKIY, S.D., red.; BAYRASHEVSKIY, A.M., kand. tekhn. nauk, red.; POLYUSHKIN, V. A. red.; BALANDIN, G.I., red.; ZOTOV, D.K., red.; RYZHOV, V.Ye., red.; BUL'SHAKOV, A.N., red.; VUL'FSOV, M.S., kand. ekon. nauk, red.; IMITRIYEV, V.I., kand. ekon. nauk, red.; ALEKSANDROV, L.A., red.; LAVRENOVA, N.B., tekhn. red.

[Transportation in the U.S.S.R.; marine transportation] Transport SSSR; morskoi transport. Moskva, Izd-vo "Morskoi transport," 1961. 759 p.

(MIRA 15:2)

(Merchant marine)

KOLOMOYTSEV, Valentin Pavlovich; JUL'FSOON, M.S., red.; KSEMOFONTOVA, Ye.F., red.izd-va; LAVRENOVA, N.B., tekhn.red.

[Coast of sea transportation] Sebestoimost' morskikh perevozok. Moskva, Izd-vo "Morskoi transport," 1960. 371 p.

(MIRA 14:4)

(Merchant marine--Coast of operation)

MITAISHVILI, A.A., kand.ekonom.nauk; VUL'FSOV, M.S., kand.ekonom.nauk;  
AZROVA, A.G., red.

[Economy of river transportation of freight] Ob ekonomichnosti  
rechnykh perevozok. Moskva, TSentr.natchno-issle.in-t ekon.  
i ekspluatatsii vodnogo transp., 1959. 92 p. (MIRA 12:7)  
(Inland water transportation)

VUL'FSO<sub>N</sub>, M.S., kand. ekon. nauk

Methods of determining the obsolescence of river vessels, Rech.  
transp. 18 no.4:14-16 Ap '59. (MIRA 13:1)  
(Ships) (Inland water transportation--Accounting)

GUREVICH, Sheftel' Moiseyevich, kand.ekonom.nauk; VUL'FSON, M.S.,  
retsentrant; DUKOR, Z.G., red.; KAN, P.M., red.izd-va;  
YERMAKOVA, T.T., tekhn.red.

[Technical and economic factors in major repair operations  
and modernization of river vessels] "Tekhniko-ekonomicheskie  
obosnovaniia kapital'nogo remonta i modernizatsii rechnykh  
sudov. Moskva, Izd-vo "Rechnoi transport," 1958. 130 p.  
(MIRA 12:4)

(Ships--Maintenance and repair)

TURETSKIY, Lev Solomonovich; NOVIKOV, Oleg Aleksandrovich;  
VUL'FSON, M.S., red.; KSENOFONTOVA, Ye.F., red. izd-va;  
TIKHONOV, Ye.A., tekhn. red.

[Amortization of capital assets of the merchant marine]  
Amortizatsiya osnovnykh fondov morskogo transporta. Moskva,  
Izd-vu "Morskoi transport," 1963. 123 p. (MIRA 16:7)  
(Merchant marine--Finance)

VULFSON, H. F.

Chemical Abst.  
Vol. 48 No. 5  
Mar. 10, 1954  
Organic Chemistry

$\alpha$ -Hydroxy acids. Notes about the paper by A. M. Gakhovitz on "condensation of ketones with esters of organic acids." N. F. Vulfson. *J. Org. Chem. U.S.S.R.* 22, 783- (1952) (Engl. translation). — See *C.A.* 47, 27014. H. L. H.

VUL'FSON, N. I.

Cand. Physicomath Sci.

Dissertation: "Circulation Factors of the Aridity of Lower Volga Region,  
Kazakhstan and Central Asia."

1/3/50  
Geophysical Inst. Acad. Sci. USSR

SO Vecheryaya Mos'kva  
Sum 71

VULFSO<sup>N</sup>, N. I.

USSR/Geophysics - Meteorology

Mar/Apr 51

"Computation of Nonzonal Case of Stationary Circulation of Atmosphere," N. I. Vulfson, Geophys Inst, Acad Sci USSR

"Iz Ak Nauk, Ser Geog i Geofiz" No 2, pp 56-74

Proposes that in summer relatively independent circulatory ring exists over North Africa, South Europe and Southwest Asia and its downward branches dominate the climate. Computes wind velocities of components of this ring to prove this assumption with affirmative results. Submitted by Acad V. V. Shuleykin.

180T67

Author: Vul'fson, N.I.

Title: Circulation factors in the dryness of the region of the lower  
Volga, Kazakhstan and central Asia.

Journals: Doklady Akademii Nauk SSSR, 1951, Vol.77, No.2, p.253

Subject: Geophysics

From: D.S.I.R. Oct 51

VUL'FSON, N. I.

USSR/Geophysics - Convective  
Currents

11 Jul 53

"Methods for Studying the Convective Movements in a  
Free Atmosphere," N. I. Vul'fszon, Geophys Inst, Acad  
Sci USSR

DAN SSSR, Vol 91, No 2, pp 233-236

Proposes a method in which a horizontally flying  
airplane equipped with a sensitive thermometer  
records the ascending air currents intersected by  
the airplane as a zone with several very high temps,  
higher than in the surrounding space. Presented by  
Acad O. Yu. Schmidt 16 Jun 53.

276T54

L 22640-65 EWT(1)/ECO CW

ACCESSION NR: AP5000914

8/0020/04/169/004/0786/0786

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AUTHOR: Vul'fson, N.I., Ivanov, V.N.

TITLE: Structure of a temperature field in cumulus clouds

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1964, 786-788

TOPIC TAGS: dimensional equation, structural formula, structural function, temperature field, temperature sensor, cumulus cloud

**ABSTRACT:** This article attempts to determine the magnitudes of a temperature field and the inhomogeneities in cumulus clouds. The authors begin with the premise that the inhomogeneities depend on the dissipation rate of turbulent energy  $\epsilon$  and the similarity of the temperature field  $N$ . By using dimensional equations, they determine the magnitudes of the inhomogeneities. Then, by means of structural formulas, they determine the magnitude of the temperature field  $N$ . It is pointed out, however, that the inertia of the temperature detecting element must be taken into account when the structural function is determined. As shown in Fig. 1 of the following, the width  $\delta$  is determined. Orig. art. has: 1 table, 3 figures, and 3 formulas.

Card 1/3

L 22640-65

ACCESSION NR: AP6000914

ASSOCIATION: Institut prilidnichoy geofiziki (Applied geophysics institute)

SUBMITTED: 17 Jun 84

ENCL: 01

SUB CODE: E8

NO REF Sov: 046

OTHER: 000

Card 2/3

VUL'FSON, N. I.

USSR/ Geophysics      Clouds

Card : 1/1

Authors : Vul'fszon, N. I.

Title : Convective movements in cumuli (heap clouds)

Periodical : Dokl. AN SSSR, 97, Ed. 1, 77 - 80, July 1954

Abstract : Experimental data reflecting numerous characteristic features of convective movements in cumuli, are presented. The data do not include about 10% of much colder streams of the surrounding space observed outside of the clouds with a convection maximum close to the condensation level. The negative intensity of these streams is explained, and the direction of motion of the cold streams and the rate of motion are described. All characteristics of the convective motions were calculated with consideration of the cold streams. One USSR reference. Tables, graphs.

Institution : Acad. of Sc. USSR, Geophysics Institute

Presented by : Academician, G. A. Gamburtsev, March 26, 1954

VUL'FSON, N. I.

Method of studying convection in the free atmosphere. Izv. AN  
SSSR. Ser. geofiz. no.5:549-561 My '56. (MLRA 9:8)

1. Akademiya nauk SSSR, geofizicheskiy institut.  
(Heat-Convection) (Atmosphere)

✓ Vulfson, N. I. and Lev, I. M. Piatela ocherednaya nauchno-tekhnicheskaya konferentsiya po voprosam istedovaniya elektriciteta, osadkov i gрозovogo elektriciteta. [First international conference on problems of lightning, precipitation and thunderstorm electricity research]. Akademiia Nauk SSSR, Izdatelstvo Nauk. Ser. Izdat. No. 6:735-739, June 1956. 11C—This conference was held during Feb. 6-11, 1956 at the Central Geophysical Observatory. Some sixty reports were presented on work carried out during the first three years. Brief summaries are given of about thirty of the papers that were presented. Subject Headings: 1. Conferences 2. Clouds 3. Thunderstorm electricity. — L.D. //

*Vul'Fson, N.I.*

VUL'FSO N.I.

Conditions of formation of cumulus in a mountainous region.  
Izv.AN SSSR Ser.geofiz.no.7:821-830 Jl '56. (MIRA 9:9)

1.Akademiya nauk SSSR, Geofizicheskiy institut.  
(Clouds)

SOV/169-59-2-1739

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 2, p 114 (USSR)

AUTHOR: Vul'fson, N.I.

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TITLE: A Method for Studying the Convective Movements in the Free Atmosphere and  
Some Results From Measurements

PERIODICAL: V sb.: Issled. oblakov, osadkov i grozovogo elektrichestva. Leningrad,  
Gidrometeoizdat, 1957, pp 48 - 49

ABSTRACT: The results of investigations of the convective movements in the free atmosphere are briefly expounded. The observations are carried out by means of an air-borne thermometric equipment recording the ascending streams and bubbles as regions of higher temperature in comparison with the surrounding space. The root-mean-square error in determining the excess of the temperature in a stream amounted to about  $0.02^{\circ}\text{C}$ . The excesses of the temperature in streams amount on the average to  $0.2 - 0.3^{\circ}\text{C}$ . The mean dimensions and the spectra of the streams vary little with the altitude and during the day (with the exception of the lower 100 - 300 m). The variations of the temperature in the streams and the frequency of their origination have diurnal course. The dimensions of

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SOV/169-59-2-1739

A Method for Studying the Convective Movements in the Free Atmosphere and Some Results  
From Measurements

the streams and the excesses of the temperature in the cumuli are greater than out of the clouds; their magnitudes increase with the distance from the cloud base. The convective streams in the <sup>W</sup>clouds are intensified when moving upward on account of the liberation of the latent condensation heat. The excess of the temperature in the streams is not depending on its dimensions, with the exception of the lower layer of 100 - 300 m. The streams have greater dimensions and temperature and reach greater altitudes above mountain sides and crests none covered with snow than above the adjacent valleys. Above crests, the height of the streams exceeds the altitude of the cumuli. (In-t prikl. geofiz. AS USSR, Moscow).

M.S. Malkevich

Card 2/2

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VUL'FSOY, N.I.

Compensatory descending currents dependent on developing cumulus  
clouds. Izv.AN SSSR. Ser.geofiz.no.1:94-103 Ja '57. (MLRA 10:3)

1. Akademiya nauk SSSR. Institut prikladnoy geofiziki.  
(Clouds) (Atmosphere)

AUTHOR: VUL'FSON, N.I. PA - 2240  
TITLE: A Method of Studying downward Compensation Air Currents about  
Developing Cumuli (Metod izucheniya kompensatsionnykh niskhodya-  
shchikh techeniy okolo razvivayushchikhsya kuchevykh oblakov,  
Russian).  
PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 112, Nr 4, pp 626 - 627  
(U.S.S.R.)  
Received: 4 / 1957 Reviewed: 5 / 1957  
ABSTRACT: The method of the indication of the downward compensation currents  
due to developing cumuli is based upon the following ideas: The  
downward compensation currents begin near the upper boundary of  
the clouds where usually a rather slight temperature drop with  
height, sometimes isothermic states or even temperature reverse  
is observed. Therefore, air in the compensation currents is warmer  
than the surrounding atmosphere, so that the air is heated nearly  
adiabatically. In that layer where cumuli develop, the temperature  
gradient cannot be higher than the adiabatic one. The downward  
convection currents are easily fixed by a similar method as in  
the case of upward convection currents, namely by means of a  
thermometer with low inertia fitted in an airplane.  
Diagrams of air temperature, load of the airplane, velocity of  
flight, and deviation from the height assumed, are attached.

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PA - 2240

A. Method of Studying downward Compensation Air Currents about Developing Cumuli.

In direct proximity to the clouds and between them relatively small and distinctly marked warm currents may be observed. These currents have among others, the following characteristic properties: 1) The compensation currents are immediately beside the clouds and form relatively small currents (of approximately the same size as the cloud) which are distinguished sufficiently well from the surrounding cloudless space. 2) The stresses on the airplane caused by the cutting through of the downward currents as a rule are smaller than stresses in the clouds, but considerably greater than the loads during flight in cloudless space at height of the clouds. 3) The compensation currents always occur near the upper part of the clouds. The vertical expansion of these currents is small in the neighborhood of big cumuli compared to that of the cloud. With increasing distance from the peak of the cloud the number of observed downward currents decreases considerably. 4) The surface of downward currents near developing clouds is on the average of the same order of magnitude as the surface of the cloud.

(1 illustration)

L 13966.65 ENT(1)/FDC GW

8/0021/64/158/006/1320/1323

ACCESSION NR: AP4048039

AUTHOR: Vul'fson, N. I.; Levin, L. M.

TITLE: Descending convective currents

SOURCE: AN SSSR. Doklady\*, v. 153, no. 6, 1964, 1321-1323

TOPIC TAGS: atmospheric circulation, air current, temperature gradient

B

ABSTRACT: The paper deals with the differences between the laws of temperature change and the rate of flow in unstable layers of air for ascending and descending currents. An unstable layer is considered, for which the vertical temperature gradient  $\gamma$  is larger than the dry or wet adiabatic coefficient  $\gamma_*$ , depending on whether a cloudless or cloudy layer is involved. In such a layer, the stationary flow along the axis of symmetry can be derived from the equation (in cylindrical coordinates):

$$u \frac{\partial \theta}{\partial r} + w \frac{\partial \theta}{\partial z} = \beta g \theta + \frac{1}{r} \frac{\partial}{\partial r} \left( K_1 r \frac{\partial w}{\partial r} \right), \quad (1)$$

$$u \frac{\partial \theta}{\partial r} + w \frac{\partial \theta}{\partial z} = (\gamma - \gamma_*) w + \frac{1}{r} \frac{\partial}{\partial r} \left( K_1 r \frac{\partial \theta}{\partial r} \right).$$

$$\frac{\partial}{\partial r} (ur) + \frac{\partial}{\partial z} (wz) = 0$$

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ACCESSION NR: AP4048039

with the boundary conditions

$$u = \frac{\partial w}{\partial r} = \frac{\partial \theta}{\partial r} = 0$$

for  $r = 0$ 

(2)

$$w = 0 = K_1 r \frac{\partial w}{\partial r} = K_1 r \frac{\partial \theta}{\partial r} = 0$$

and  $u$  bounded for  $r = R(z)$ . Here,  $u$  and  $w$  are the radial and vertical components of speed;  $\theta$  the excess of temperature in the flow;  $g$  the acceleration due to gravity;  $\beta$  the temperature coefficient of density;  $K_1$  and  $K_2$  the coefficients of turbulent friction and turbulent heat exchange; and  $R$  the radius of the flow. The authors then show how to approximate the solution to these equations. The theoretical model derived is seen to agree well with observed circumstances. It is also observed that in descending currents in thunderclouds, the intensity and change in temperature increase near the base of the cloud due to the circulation of the air, and that the speed and temperature of descending currents near the base of a cloud are actually greater than those of the ascending currents. Orig. art. has 1 figure and 16 formulas.

Card 2/3

I-13966-65

ACCESSION NR: AP4048039

ASSOCIATION: Institut prikladnoy geofiziki (Institute of Applied Geophysics)

SUBMITTED: 17Apr64

ENCL: 00

SUB CCDE: ES

NO REF SOV: 006

OTHER: 003

Card 3/3

AUTHOR: Vulfson, N.I.

SOV/49-58-7-6/16

TITLE: Statistical Methods of Determination of Effective Parameters of the Observed Convective Currents (Statisticheskiye metody opredeleniya deystviteľ'nykh parametrov konvektivnykh potokov po nablyudayemym)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, nr 7, pp 876 - 890 (USSR)

ABSTRACT: 1) One of the methods of determining the convective motion in the atmosphere is a calculation based on the temperature measured from an aircraft. An application of this method helped considerably in studying the characteristics of convection and the formation of clouds. However, there is still a need of an improved method in order to establish the distribution of the effective currents and their temperatures. This work is an attempt to apply a statistical method for this kind of investigation. The method could also be used in other fields, such as geophysics, biology, astronomy or geology.  
2) Two main kinds of convection are investigated: when it is produced by the air lifted from the Earth surface ("stream") or when an isolated mass of air ("air bubble")

Card 11 is ascending.

SOV/49-58-7-6/16

## Statistical Methods of Determination of Effective Parameters of the Observed Convective Currents

a) It is assumed that the air in the upward motion represents a series of homogeneous cylinders. It is possible to construct a function describing the distribution of their number and the concentration of centres  $N_1$ . The probability density of the circles having diameter  $S$  is denoted by  $F_1(s)$ , forming an Eq.(1). A number of the circles having diameters from  $s$  to  $s + ds$  per unit of a straight line intersecting these circles is denoted by Eqs.(2) or (4). The total number of circles (of all diameters) is (3), where  $\bar{s}$  is the first moment or a mean diameter. The relationship (5) is obtained by equalising Eqs.(4) to (2). The probability of obtaining the chords having dimensions from  $l$  to  $l + dl$  can be expressed by Eq.(6). The conditional probability is equal to Eq.(7). By substituting Eqs.(7) and (5) into (6), an integral equation (8) is formed which gives a distribution of equal circles and chords. The Eq.(8) can be transformed into (9) for the limiting case  $R \rightarrow \infty$ .

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